

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

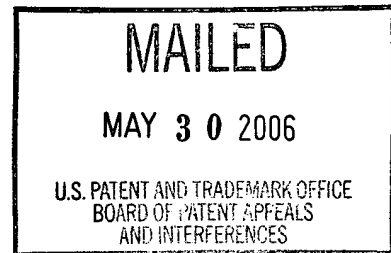
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte NEVENKA DIMITROVA, LALITHA AGNIHOTRI
and THOMAS FRANCIS MCGEE III

Appeal No. 2006-1591
Application No. 09/866,394

ON BRIEF



Before HAIRSTON, KRASS, and BLANKENSHIP, Administrative Patent Judges.

HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 5, 7 through 15, 17 through 24, 26 through 33 and 35 through 38.¹

The disclosed invention relates to a method and system for creating visual summaries of video material. The method and system receive keyframes of video material, and extract frame signatures from the keyframes. Superhistograms are then created from the frame signatures. The frame signatures and the superhistograms are thereafter used to select representative keyframe

¹ Claims 17 and 35 erroneously depend from canceled claims 16 and 34, respectively.

images for each superhistogram to create a compact visual summary of the video material.

According to the disclosed and claimed invention, the representative images include at least one of (1) the first image in each family histogram, (2) the most meaningful image in each superhistogram, (3) a randomly chosen image, and (4) an image that is closest to the cluster center.

Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. For use in a system (100) capable of creating visual summaries of video material, an apparatus (130, 200) for creating a compact visual summary of video material, said apparatus (130, 200) comprising:

a visual summary controller (130, 200) capable of receiving keyframes of said video material;

wherein said visual summary controller (130, 200) is capable of extracting frame signatures from said keyframes, and capable of using said frame signatures to create superhistograms from said keyframes, and capable of using said frame signatures and said superhistograms to select representative keyframe images for each superhistogram to create a compact visual summary of said video material,

wherein said representative images include at least one of (1) the first image in each family histogram, (2) the most meaningful image in each superhistogram, (3) a randomly chosen image, and (4) an image that is closest to the cluster center.

The references relied on by the examiner are:

Wang et al. (Wang)

5,805,733

Sept. 8, 1998

Dimitrova et al. (Dimitrova), "Color SuperHistograms for Video Representation," Proceedings of the IEEE International Conference on Image Processing, October 1999, pages 314 through 318.

Claims 1 through 5, 7 through 15, 17 through 24, 26 through 33 and 35 through 38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Dimitrova in view of Wang.

Reference is made to the final rejection, the briefs and the answer for the respective positions of the appellants and the examiner.

OPINION

We have carefully considered the entire record before us, and we will sustain the obviousness rejection of claims 1 through 5, 7 through 15, 17 through 24, 26 through 33 and 35 through 38.

According to the examiner's findings (final rejection, pages 2 and 3), the Dimitrova publication discloses all of the steps and structure of claims 1, 11, 21 and 30 with the exception of selecting "representative keyframe images for each superhistogram to create a compact visual summary of said video material, wherein said representative images include at least one of (1) the first image in each family histogram, (2) the most meaningful image in each superhistogram, (3) a randomly chosen image, and (4) an image that is closest to the cluster center." The teachings of Wang were relied on by the examiner because they describe summarizing video sequences to create compact visual summaries of video material by "selecting representative keyframe images from each group of related scenes to create a compact visual summary of the video material (summarizing a video sequence by taking one representative frame from each set of related scenes with similar average color histograms, to represent the set to enable the user to view a large sampling of video sequence images) (Wang et al.: column 1, lines 51-67 and column 2,

large sampling of video sequence images) (Wang et al.: column 1, lines 51-67 and column 2, lines 1-24; this is further shown in Figure 3), wherein the representative images include at least one of the first image in each family histogram, the most meaningful image in each superhistogram, a randomly chosen image and an image that is closest to the cluster center (the representative frame image can be taken from the temporally medial scene in the set or from one of the frames of the longest scene in the set of related scenes) (Wang et al.: column 3, lines 37-66)” (final rejection, page 3). In view of the teachings of Dimitrova and Wang, the examiner concluded (final rejection, pages 3 and 4) “[i]t would have been obvious to one of ordinary skill in the art . . . to modify the visual summary controller capable of extracting frame signatures from keyframes to create superhistograms of Dimitrova et al., to include the further step of selecting representative keyframes from those superhistograms and using the representative keyframe images to create a compact visual summary, taught by Wang et al.”

Appellants agree with the examiner’s findings concerning the teachings of Dimitrova (brief, page 9). On the other hand, appellants disagree with the examiner’s findings concerning Wang because appellants are of the opinion that Wang describes temporal ordering of frames whereas the disclosed invention is based on non-temporal ordering of frames (brief, pages 11, 16 and 18). Based upon this difference, appellants argue that Wang fails to describe representative images that include at least one of “the most meaningful image in each superhistogram” or “an image that is closest to the cluster center.”

In reply to the appellants' temporal versus non-temporal argument (answer, page 8), the examiner correctly noted "there is no basis or support in the specification or claim language for the applicant's [sic, applicants'] argument." Thus, we agree with the examiner's observation (answer, page 10):

Since the specification of the applicant's [sic, applicants'] invention fails to include a definition of "cluster center", taking the broadest reasonable interpretation, one of ordinary skill in the art would interpret an image that is closest to the cluster center to be an image that is closest to the center, or middle of a cluster of scenes. Since Wang teaches that the representative frame is a frame that is halfway between the first and last scenes, Wang teaches that the representative frame is at the center of the cluster of frames and is therefore a frame that is closest to the cluster center.

With respect to appellants' argument concerning "the most meaningful image," we agree with the examiner's statements (answer, pages 10 and 11):

Second with reference to the representative image being the most meaningful image in each superhistogram, Wang teaches that the representative frame can be a frame taken from the longest scene, since the longest scene is most indicative of the content of the related scenes, as recited in column 3, lines 59-62. The applicant argues [sic, applicants argue] that simply selecting one frame from among the frames of the longest scene, as taught by Wang, does not teach or disclose the "most meaningful frame in the group" since the specification of the invention recites with particularity (by example) what constitutes the "most meaningful frame", i.e. a person's face, an important text, etc. The examiner respectfully disagrees. In response to applicant's [sic, applicants'] argument that the references fail to show certain features of applicant's [sic, applicants'] invention, it is noted that the features upon which applicant relies [sic, applicants rely] (i.e., the representative frame being a person's face, an important text, etc.) are not recited in the

rejected claim(s) Although the applicant's [sic, applicants'] specification gives **examples** of some frames that can be considered the "most meaningful frame" (the specification recites at page 16, lines 21-22, "The term 'meaningful image' **may** refer to a frame with a person's face, an important text, **etc.**"), it does not require that the most meaningful frame **has to be** a frame with a person's face or an important text. Wang teaches selecting representative scenes for presentation to a user that have the "most significant content", as recited in column 5, lines 11-20. Wang further recites that a representative frame "can be taken as one of the frames of the longest scene in a set, the longest scene being most indicative of the content of the related scenes", in column 3, lines 59-62. Therefore, the examiner respectfully argues that since the longest scene is most indicative of the content of the related scenes, the longest scene is the most meaningful of the group.

We agree with the examiner's conclusions that Wang describes representative images that are "closest to the cluster center," and a representative image that is "the most meaningful image." It appears that appellants also agree with the examiner's findings (reply brief, page 2, paragraphs 4 through 6).

In summary, the obviousness rejection of claims 1, 11, 21 and 30 is sustained. The obviousness rejection of claims 2 through 5, 7 through 10, 12 through 15, 17 through 20, 22 through 24, 26 through 29, 31 through 33 and 35 through 38 is likewise sustained because appellants have not presented any patentability arguments for these claims apart from the patentability arguments presented for claims 1, 11, 21 and 30.

DECISION

The decision of the examiner rejecting claims 1 through 5, 7 through 15, 17 through 24, 26 through 33 and 35 through 38 under 35 U.S.C. § 103(a) is affirmed.


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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv).

AFFIRMED


KENNETH W. HAIRSTON
Administrative Patent Judge


ERROL A. KRASS
Administrative Patent Judge


HOWARD B. BLANKENSHIP
Administrative Patent Judge

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